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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/728,949	12/08/2003	Hiroshi Kajiyama	056208.50373C1	8996
23911	7590	05/20/2004	EXAMINER	
CROWELL & MORING LLP INTELLECTUAL PROPERTY GROUP P.O. BOX 14300 WASHINGTON, DC 20044-4300			DONG, DALEI	
			ART UNIT	PAPER NUMBER
			2879	

DATE MAILED: 05/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/728,949	KAJIYAMA ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Dalei Dong	2879	<i>Am</i>

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 08 December 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 7-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 7-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Specification***

1. The incorporation of essential material in the specification by reference to a foreign application or patent, or to a publication is improper. Applicant is required to amend the disclosure to include the material incorporated by reference. The amendment must be accompanied by an affidavit or declaration executed by the applicant, or a practitioner representing the applicant, stating that the amendatory material consists of the same material incorporated by reference in the referencing application. See *In re Hawkins*, 486 F.2d 569, 179 USPQ 157 (CCPA 1973); *In re Hawkins*, 486 F.2d 579, 179 USPQ 163 (CCPA 1973); and *In re Hawkins*, 486 F.2d 577, 179 USPQ 167 (CCPA 1973).
2. The disclosure is objected to because of the following informalities: on Page 7, "Figure 1" should be revised to Figure 1A.  
  
Appropriate correction is required.
3. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 2879

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 7-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,770,921 to Aoki in view of U.S. Patent No. 5,976,236 to Yoshihara.

Regarding to claims 7-11, Aoki discloses in Figure 2, a sectional view of an AC plasmas display panel. The AC plasma display panel comprising of "a front panel which is made up of front glass substrate 11 with electrode 12 and dielectric glass layer 13, thereon; and a back panel is made up of back glass substrate 15 with address electrode 16, partition walls 17, and fluorescent substance layer 18, the front panel and back panel being bonded together. Discharge space 19, which is sealed with the front panel and back panel, is charged with a discharge gas" (column 3, line 59-66).

Aoki also discloses in Figure 2, "a protecting layer 14 consists of an alkaline earth oxide with (100)-face orientation and is dense. The present embodiment uses a CVD method (thermal CVD method or plasma enhanced CVD method) to form such a dense protecting layer consisting of magnesium oxide with (100)-face orientation" (column 4, line 15-20).

Aoki further discloses in Figure 3, "For the CVD apparatus, either of the thermal CVD method and plasma enhanced CVD method is applicable. CVD apparatus 25 includes heater 26 for heating glass substrate 27 (equivalent to front glass substrate 11 with display electrodes 12 and dielectrics glass layer 13 as shown in FIG. 2). The pressure inside CVD apparatus 25 can be reduced by venting apparatus 29. CVD

Art Unit: 2879

apparatus 25 also includes high-frequency power 28 for generating plasma in CVD apparatus 25" (column 4, lines 59-67).

Aoki further yet discloses in Figure 3, "Ar-gas cylinders 21a and 21b supply argon (Ar) gas, which is used as a carrier, to CVD apparatus 25 respectively via bubblers 22 and 23" (column 5, lines 1-3).

Aoki further yet discloses in Figure 3, "bubbler 22 stores a metal chelate of alkaline earth oxide used as the source and heats it. The metal chelate is transferred to CVD apparatus 25 when it is evaporated by the argon gas blown on it through Ar-gas cylinder 21a" (column 5, lines 4-7).

Aoki furthermore discloses in Figure 3, "bubbler 23 stores a cyclopentadienyl compound of alkaline earth oxide used as the source and heats it. The cyclopentadienyl compound is transferred to CVD apparatus 25 when it is evaporated by the argon gas blown on it through Ar-gas cylinder 21b" (column 5, lines 8-12).

Aoki finally discloses in Figure 3, "oxygen cylinder 24 supplies oxygen (O.sub.2) used as a reaction gas to CVD apparatus 25" (column 5, lines 13-14).

However, Aoki does not disclose a protective film that has a higher density. Yoshihara teaches, a MgO film, by printing, as a protective layer for an alternating current type plasma display panel, it is known that the protective layer is poor in sputtering resistance unless uniform fine particles of MgO having a diameter of 0.03 *the particle of MgO having diameter of 0.03 it will have a density of higher than 400 columnar structure per 1 square micrometer* to 0.3 .mu.m are contained and the fine particles of MgO are homogeneously dispersed in a binder" (column 1, lines 61-67).

Yoshihara also teaches "The surface area of magnesium oxide in the protective layer should be increased, for example, from the viewpoint of increasing the secondary electron emission rate in an alternating plasma display. For this reason, the particle diameter of magnesium oxide is preferably not more than 0.3  $\mu\text{m}$ , more preferably not more than 0.1  $\mu\text{m}$ . When the particle diameter is brought to not more than 0.3  $\mu\text{m}$  to eliminate gaps among particles, thereby increasing the surface area, a magnesium oxide film can be efficiently formed by the conventional heat treatment process. Although the thickness of the magnesium oxide film is not particularly limited, it is preferably not more than 10  $\mu\text{m}$ , particularly preferably not more than 1  $\mu\text{m}$ " (column 8, lines 14-26).

Yoshihara further teaches "the coating composition of the present invention comprises a partial hydrolyzate, i.e., an intermediate, of a contemplated metal oxide, obtained by hydrolysis, which partial hydrolyzate is in a very small particle form and highly reactive. The coating composition of the present invention is coated to form a coating which is, if necessary, baked to form a functional film. The functional film thus formed is not such that metal oxide particles having a suitable size are merely stacked on top of one another *columnar structure*. That is, in the formed functional film, the metal oxide is flatly and homogeneously distributed integrally with the surface of a substrate, offering enhanced adhesion and high strength. This results in further reduced thickness of the functional film of the present invention. When the concentration of the partial hydrolyzate in the coating composition of the present invention is less than 0.1% by weight, no satisfactory properties are attained. On the other hand, when it is more than

Art Unit: 2879

30% by weight, the film thickness becomes so large that cracking and other unfavorable phenomena occur. For this reason, it is preferably in the range of from 0.1 to 30% by weight” (column 10, lines 27-47).

Yoshihara furthermore teaches “in the protective layer 6 formed by coating a coating composition composed mainly of a magnesium compound having a hydrolyzable reaction site on a dielectric layer 5 and baking the coating, magnesium oxide sol particles are grown and stacked on the surface of the dielectric layer 5 so as to be parallel, in its plane direction, to the dielectric layer 5, enabling the thickness of the protective layer 6 to be significantly reduced” (column 11, lines 42-49).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have utilize the high density columnar structure protective film of Yoshihara for the plasma display device of Aoki in order to increase resistivity to sputtering of the electrons and increase surface area of the protective film in order to increase the secondary electron emission rate and thus increase the lifetime of the plasma display while enable the device to have a superior display characteristics.

### ***Conclusion***

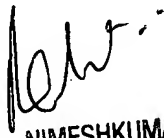
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dalei Dong whose telephone number is (571)272-2370. The examiner can normally be reached on 8 A.M. to 5 P.M..

Art Unit: 2879

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimeshkumar Patel can be reached on (571)272-2457. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

D.D.  
May 5, 2004



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SUPERVISORY PATENT EXAMINER  
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